30.   The system according to Claim 15, wherein each of said means comprise software components.

REMARKS

Favorable consideration of this application is respectfully requested.

Claims 1-30 are currently active in this case. Claims 29 and 30 have been added by way of the present amendment. Each new claim is supported by the specification and claims as originally submitted and no new matter has been added.

In the outstanding Official Action, Claims 1, 2, 4, 7, 15, 16, 18, and 21 were rejected as being unpatentable under 35 U.S.C. §102(e) over *Chang et al.* (U.S. Pat No. 6,272,664, hereinafter *Chang*).

Applicant appreciatively acknowledges the allowance of Claims 8-14 and 22-28 and identification of allowable subject matter in claims 3, 5, 6, 17, 19 and 20.

Applicant also appreciatively acknowledges the courtesy of an interview granted by Examiner Ferris to Applicant's attorney on Tuesday, October 8, 2002. During the course of the interview, *Chang's* use of polynomials to replace look-up tables in a model was compared to Applicant's use of a mathematical expression and rules to transform a candidate cell to a requested cell.   Examiner Ferris indicated that the discussion had merit and would be fully considered upon submission of this formal amendment.

Applicant respectfully traverses the rejection of Claims 1 and 15 as being anticipated by *Chang*. Claim 1 recites:

> 1. *A method for inferring a requested sequential cell from a candidate cell during the generation of a netlist; comprising the steps of:*
>   *a) representing the requested cell as a mathematical expression;*
>   *b) representing the candidate cell as a mathematical expression;*
>   *c) performing an operation on the requested cell representation with the candidate cell representation to return at least one value;*
>   *d) providing a rule corresponding to each returned value; and*
>   *e) transforming the candidate cell into the requested cell by performing each rule corresponding to each returned value.*

However, *Chang* fails to teach or suggest similar subject matter.

Applicant respectfully traverses the assertion in the outstanding Official Action that *Chang* teaches a system and method for representing an input (requested) cell from a netlist as a mathematical expression and further providing an output (candidate) representation. Applicant respectfully submits that *Chang* teaches (1) a method of replacing a look-up table with a polynomial to save memory space (*Chang*, Abstract, col. 7, line 5 – col. 17, line 26); and (2) a timing computation process (*Chang*, Summary, col. 17, line 27 – end).

Chang's method of replacing a look-up table with a polynomial provides reduced memory requirements of a model described by the look-up table. The lookup table describes properties of a component being modeled (given certain inputs, the model's output is retrieved from the lookup table). Unfortunately, a look-up table model requires that all outputs be stored and correlated to the range of possible input values. Thus, to reduce storage requirements, *Chang* substitutes the table with an appropriate polynomial, and the polynomial is used to compute an

output by applying input values to the polynomial, providing a memory efficient model.

In contrast to *Chang's* use of a polynomial in modeling, the present invention uses a mathematical expression to describe cells in a way that allows a requested cell to be transformed from a candidate cell. As described in Applicant's specification, the requested cell has various types of inputs and outputs that need to be matched in a cell library by a design tool (e.g., inferrer server). It is possible that the requested cell exists in the library, but more likely, the requested cell will need to be constructed/tranformed from other candidate cells in the library.

To do this, the design tool utilizes the mathematical representation of both the requested cell and candidate cell to determine if the candidate cell can be transformed to produce the requested cell. Claim 1 recites representing each of the requested and candidate cells "as a mathematical expression," and Claim 15 includes means for representing each of the requested and candidate cells as "a mathematical expression." However, *Chang* only represents the model (look-up table), or describes a timing path with a polynomial, while Applicant's invention represents both a requested cell and a candidate cell as mathematical expressions.

More importantly, Applicant's use of the mathematical expressions is entirely different than use of the polynomial in *Chang*. *Chang's* polynomial only replaces actual functionality of a look-up table or describes timing paths, while Applicant's mathematical expressions describe both the candidate and requested cells from a standpoint that allows the server to build new cells by transforming the candidate cell to the requested cell (e.g., the polynomial and rules allow the server to determine if the candidate cell can be transformed to the requested cell).

More specifically, Claim 1 recites:

"e)   transforming the candidate cell into the requested cell by performing each rule corresponding to each returned value."

and Claim 15 recites,

e)   means for transforming the candidate cell into the requested cell by performing each rule corresponding to each returned value.

but *Chang* does not teach or suggest polynomial operations that provide a return value or other rule that facilitates transformation of requested cells from the candidate cells.

Furthermore, Applicant respectfully traverses the assertion in the outstanding Office Action that *Chang* teach providing a rule (based on look-up tables) and further transforming the cell by performing the rule. In the present invention, rules are used to accommodate the various transformations necessary to convert a candidate cell into a requested cell. Claim 1 specifically recites the step of:

d)   providing a rule corresponding to each returned value;

and Claim 15, also contains:

d)   means for providing a rule corresponding to each returned value; and

However, if *Chang* is applied to a candidate cell whose functionality is described by a look-up table, the result would simply be the same candidate cell whose functionality is now described by a polynomial. Thus, *Chang* converts how a cell's function is described (from a look up to a polynomial), but *Chang* does not transform the candidate cell into a requested cell nor use rules as described in Claims 1 and 15. In fact, after a thorough search of *Chang*, Applicant has been

unable to find any discussion related to rules for transforming candidate cells to requested cells.

Therefore, Applicant respectfully submits that neither Claim 1 nor Claim 15 can be anticipated or rendered obvious in view of *Chang*, because *Chang* fails to teach or suggest the claimed subject matter. Based on the patentability of Claims 1 and 15, Applicant further respectfully submits that all remaining claims are also patentable.

Consequently, no further issues are believed to be outstanding, and it is respectfully submitted that this case is in condition for allowance. An early and favorable action is respectfully requested.

Respectfully submitted,

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